

Going GREEN with integrated design

Building from the ground up is an opportunity to do things right the first time. Taking full advantage, the District is investing in energy efficiency in the design for its new headquarters in Berthoud.

With the responsibility to promote wise use of natural resources, the District sees an energy efficient building as another way to conserve.

"The designers have promised this will be a very efficient building," says Don Cumpsten, Head of District Facilities and Equipment Department. "We asked for these criteria [efficiency] way up front."

Integrated design is a point the project's lead architects, Ken Field and George Brelig, like to emphasize.

"It means the architecture and the mechanical design of the building work together for the greatest efficiency," Field explained.

By incorporating efficient features for lighting, windows, heating and cooling, Field and his associates at Fort Collins-based RB + B Architects have designed a structurally and environmentally sound building.



Intelligent illumination

The design emphasizes daylight. Virtually every office will have windows, and some will have high glass on the interior side to filter light to central work areas. Daylight not only minimizes the amount of artificial light required, but is easier on workers' eyes.

A light sensitive dimming system will use photo sensors to detect available daylight and supplement it with only the amount of ambient light necessary.

Even the light fixture lamps will require less energy. They'll be part of a direct/indirect lighting scheme. Some direct light will shine straight down. Then indirect light, which is reflected off the ceiling, will neutralize the shadows that force eyes to continually readjust.

Premium panes

Another focus has been to work in as many north- and south-facing windows as possible, while striking some balance with views of the mountains to the west. A building with mostly north- and south-facing windows is more energy efficient by



Architects incorporated energy efficiency into the design of the District's new headquarters, shown here in an artist's rendering.

design. It is less subject to high cooling loads created by direct sunlight from the east and west.

Sunshades will provide further protection. By using overhangs outside the building, some hot summer sun will be shut out, while more welcome winter sun can enter. This will reduce heating and cooling loads.

The panes themselves will be high performance low-E glass that eliminates glare, provides thermal protection and reflects UV rays.

"It's a low heat transmitting and low light transmitting glass," says Field.

"The idea is that it gives you balanced light.

"What you want is glass that looks fairly clear from the inside, but lets in less light. It's better to have bigger windows that let in less light because you achieve less contrast between light and dark."

The combination of low-E glass and indirect lighting reduces glare and shadows, producing a more comfortable and productive work atmosphere.

Comprehensive climate control

The heating and cooling unit will be smaller than at the Wilson Avenue building but will be regulating temperature for three times the square footage.

This is possible partly because the new building will be well insulated.

Achieving better insulation is simple: use more material.

The smaller heating unit is also a reflection of all the things RB + B has done to save energy in the building. Remember integrated design?

For example, indirect lighting reduces electricity use and cooling loads. The glass on the windows reflects UV rays to prevent heating problems. The insulation prevents heat from escaping. Overall strategic design makes downsizing the heating and cooling units possible.

Another interesting feature is the ice storage cooling system. It will make ice at night when electricity rates drop. The ice will be used to cool the building during the day. By utilizing cheap power during off-peak hours, the District will save money.

With its "green" building, the District hopes to model resource conservation as a means of creating possibilities in a world of limitations.